**Before using your air conditioner, please read this manual carefully and keep it for future reference.**

# SPLIT-TYPE ROOMAIR CONDITIONER

KLIMAIRE®

# *Service Manual*

Read This Manual

- Please read this installation manual completely before installing the product.
- If the power cord is damaged, replacement work shall be performed by authorised personnel only.
- Installation work must be performed in accordance with the national wiring Standards by authorised personnel only.
- Contact an authorised service technician for repair, maintenance or installation of this unit.

# CONTENTS


## *SAFETYPRECAUTIONS*

Warning ..... 2
Caution ..... 2

## *INSTALLATION INSTRUCTIONS*

Selecting installation place..... 3
Accessories ..... ..... 4
Indoor unit installation..... 5
Outdoor unit installation..... 9

## *REFRIGERANT PIPE CONNECTION*

Refrigerant pipe connection .....10

## *ELECTRICALWORK*

Electrical work ..... .....12

## *TEST RUNNING*

Test running ..... .....13


⚠ CAUTION

- Contact an authorised service technician for repair or maintenance of this unit.
- Contact an authorised installer for installation of this unit.
- The air conditioner is not intended for use by young children or infirmed persons without supervision.
- Young children should be supervised to ensure that they do not play with the air conditioner.
- If the power cord is to be replaced, replacement work shall be performed by authorised personnel only.
- Installation work must be performed in accordance with the national wiring Standards by authorised personnel only.

- Read the follow SAFETYPRECAUTIONS carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating and main circuit for the model to be installed.
- Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

| | |
|---|---|
| ⚠ **WARNING** | This symbol indicates the possibility of death or serious injury. |
| ⚠ **CAUTION** | This symbol indicates the possibility of injury or damage to property. |

**The items to be followed are classified by the symbols:**

| | |
|---|---|
| ⃠ | Symbol will background white denotes item that is PROHIBITED from doing. |

⚠ WARNING

1) Engage dealer or specialist for installation. If installation done by the user is defective, it will cause water leakage, electrical shock fire.
2) Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock fire.
3) Use the attached accessories parts and specified parts for installation. otherwise, it will cause the set to fall, water leakage, electrical shock fire.
4) Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
5) For electrical work, follow the local national wiring standard, regulation and this installation instructions. independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock fire.
6) Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
7) Wiring routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
8) When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury. ⃠
9) Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock. ⃠

⚠ CAUTION

1) This equipment must be earthed and installed with earth leakage current breaker. It may cause electrical shock if grounding is not perfect.
2) Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire. ⃠
3) Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture. AFETY

## Selecting installation place

***Read completely, then follow step by step.***

### Indoor unit

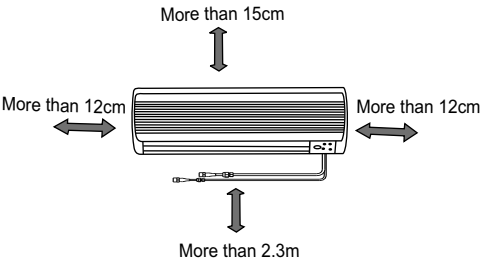


Fig.1

- Do not expose the indoor unit ot heat or steam.
- Select a place where there are no obstacles in front or around the unit.
- Make sure that condensation drainage can be conveniently routed away.
- Do not install near a doorway.
- Ensure that the space on the left and right of the unitsimore than 12cm.
- Use a stud finderto locate studs to prevent unnecessary damage to the wall.
- The indoor unit should be installed on the wall at a height of 2.3 metres or more from the floor.
- Theindoor unit should be installedallowing a minimum clearance of 15cm from the ceiling.
- Any variations in pipe length will/may require adjustment to refrigerant charge.
- There should not be any direct sunlight. Otherwise,het sun will fade the plastic cabinet and affect tis appearance. If unavoidable, sunlight prevention should be taken into consideration.

### Outdoor unit

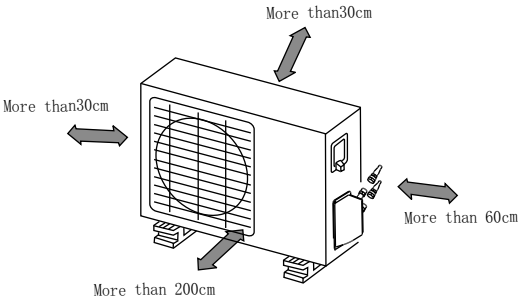


Fig.2

- If an awning is built over the outdoor unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser i s not restricted.
- Ensure that the clearance around the back of the unit is more than 30cm and left side is more than 30cm .The front of the unit should have more than 200cm of clearance and the connection side (right side) should have more than 60cm of clearance.
- Do not place animals and plants in the path of the air inlet or outlet.
- Take the air conditioner weight into account and select a place where noise and vibration will not be an issue.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.

## Rooftop installation:

- If the outdoor unit is installed on a roof structure, be sure to level the unit.
- Ensure the roof structure and anchoring method are adequate for the unit location.
- Consult local codes regarding rooftop mounting.
- If the outdoor unit is installed on roof structures or external walls, this may result in excessive noise and vibration, and may also be classed as a non serviceable installation.

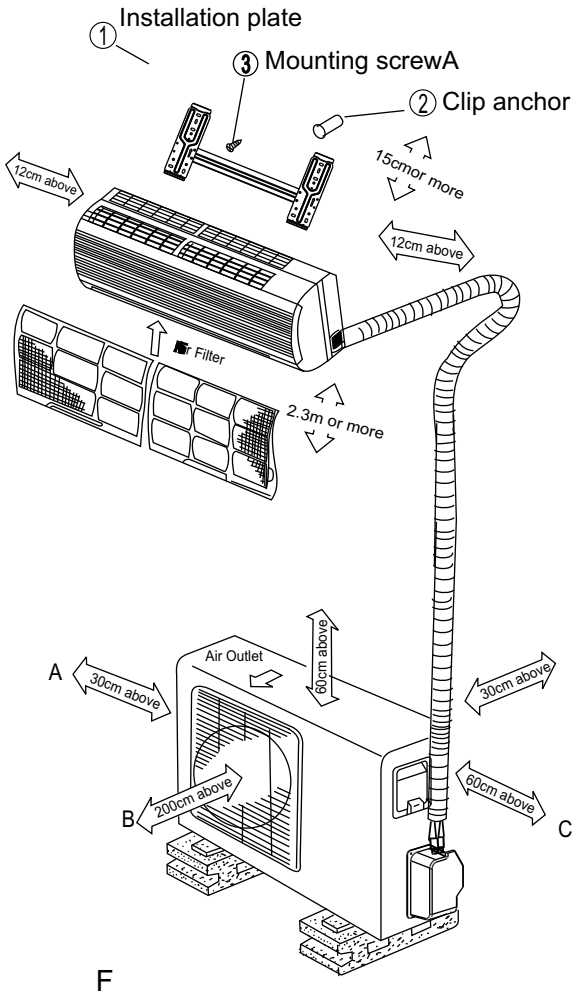
## Tools needed for installation:

Level gauge
Screwdriver
Electric drill,Hole core drill (90 Φ mm)
Specified torque wrenches: 1.8kgf.m,
4.2kgf.m, 5.5kgf.m, 6.6kgf.m
(different depending on model No.)
Spanner (half union)
Hexagonal wrench (4mm)
Gas-leak detector
Vacuum pump
Gauge manifold
Users manual
Thermometer
Multimeter
Pipe cutter
Measuring tape

## Accessories

| Number | Name ofAccessories | | Q' ty |
|---|---|---|---|
| 1 | Installation Plate | | 1 |
| 2 | ClipAnchor | | 5-8(depending on models) |
| 3 | Self-tapping Screw AST3.9X25 | | 5-8(depending on models) |
| 4 | Seal(For cooling & heating models only) | | 1 |
| 5 | Drain Joint(For cooling & heating models only) | | 1 |
| 6 | Remote controller | | 1 |
| 7 | Self-tapping Screw B ST2.9X10 | Optional parts | 2 |
| 8 | Remote controller holder | | 1 |
| 9 | Quick connecting refrigerant pipe | | 1 |

Note:Except the above parts provided, the other parts needed during installation you must purchase. ig.3



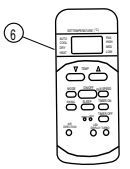

F

CAUTION

- Use a stud findert o locate studs to prevent unnecessary damage to the wall.
  A minimum pipe run of 3 metres is required to minimise vibration & excessive noise.
- Two of the A, B and C directions should be free from obstructions.
- This illustration is for explanation purposes only.
- Copper lines must be insulated independently.

Quick connecting refrigerant pipe

Remote Controller




Mounting screw B ST2.9x10-C-H

Remote controller holder

## ***Indoor unit installation***

1. F it t he Installation Plate

1. Fit t he installation plate horizontally on structural parts of t he wall with spaces around the installation plate.
2. I f the wall i s made of brick, concrete or the like, drill f ive or eight 5 mm diameter holes in the wall. I nsert Clip anchor for appropriate mounting screws.
3. Fit t he installation plate on the wall with five or eight t ype " A" s crews.

Note:

Fit t he Installation Plate and drill holes i n the wall according to the wall s tructure and corre sponding mounting points on the installation plate.(Dimensions are in " mm" u nless otherwise stated)
NOTE: The installation dimensions are slightly different according to the different models. See Fig.5.

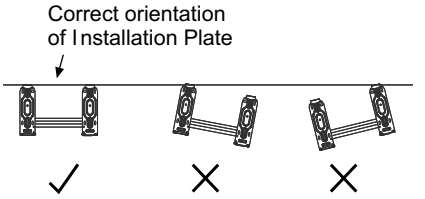



Fig.4

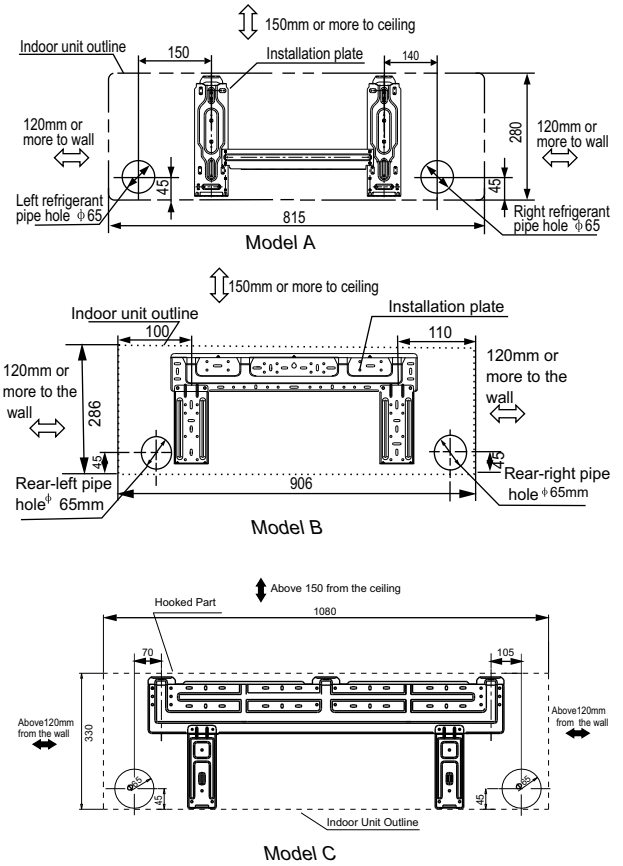



Fig.5

2. Drill a h ole in the wall

1. Determine hole positions according to the diagram detailed in Fig.5. Drill one (1) hole ( ϕ 90mm) slanting slightly to outdoor side.
2. Always use wall hole conduit when drilling metal grid, metal plate or t he like.

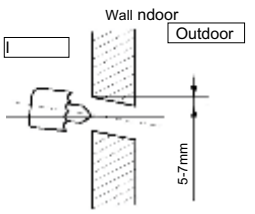
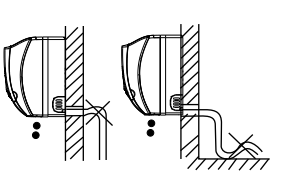



Fig.6

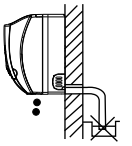
## 3. Dr aina ge Installa tion

Drainage

1. Run the drain hose sloping downward. Do not install the drain hose as illustrated in Fig.7.
2. When connecting extension drain hose, insulate the connecting part of extension drain hose with a shield pipe, do not let the drain hose slack.



Do not form a rise



Do not put the hose end into water or any container

Fig.7

## 4. Connecting the r efriger ant pipes

### 4.1 Tools needed

-Youwillrequirethefollowingtoolstocarryoutthis installationworkcorrectly:
1xopen-endedspanner,19mm
1xopen-endedspanner,22mm/24mm
1xopen-endedspanner,24mm/27mm
1xAllenkey,5mm
1xPhilipsscrewdriver
1xleakdetectionsprayoralternativelysoapsuds (water/detergent mix)

### 4.2 Important information

- Followthedetailedinstructionsforconnecting therefrigerantpipestothe indoor unit and outdoor unit.Wecanonlyprovideawarrantyif thelinesareinstalledcorrectlyasdescribedin theinstructions.
- **Donotremovethesealingcapsandstoppers untilimmediatelybeforeyouinstallthelines.**
- Topreventleaks,ensurethatthequick-release screwconnectionsareabsolutelyfreeofdirt. Moistureorforeignbodieswilladverselyaffect thefunctionofthequick-releaseconnectors, leadingtoariskofrefrigerantloss(notcovered bythewarranty).
- Onlyinstallrefrigerantlinesoutdoorsindry weather.
- Therefrigerantlinesmustnotbeinstalledand thenplasteredover.
- Pleasemakesurethatrefrigerantisnever allowedtoentertheenvironment. Improperhandlingofrefrigerantmaybeharmful tohealth.Alwayswearworkglovesandgoggles whenhandlingrefrigerant.
- Donotsmokeduringtheinstallationwork. Theequipmentmustneverbeoperatedwithout therefrigerantlinesconnected,otherwisethe equipmentwillbedamagedimmediately.
- Thescrewconnectionsmayonlybetightened usingtheappropriateopen-endedspanner.

Refrigerant pipe

Connectors(both ends):

Fig.8

**NOTE:** To distinguish the connectors to be connected to the indoor unit and outdoor unit, the connectors of the refrigerant pipe has been labelled “A”, “B”, “C” and “D”. Ensure the marks on the connectors are the same to the indoor’s and outdoor’s respectively during connection.

- Rememberthatiftheyaretightenedwithtoo little torquetheywillleakbutiftheyaretightened with toomuchtorque,thescrewconnectionsmay sufferdamage.Ifyoushouldnotbeconfident aboutconnectingtherefrigerantlineconnectors yourself,itisimperativethatyoucontactyour customerserviceteamorarefrigerationcontractor.

**Important!** TheEQvalvesareonlydesignedfor one-timeinstallation.Theirsealcan notbe guaranteediftheyareinstalledonmorethanone occasion.Thiswillalsovoidthewarranty.

### 4.3 Connecting the refrigerant pipes to indoor unit

1. Do not remove the plastic seals from the indoor equipment and the appropriate refrigerant pipe until immediately before you connect them.

2.Align the refrigerant pipes correctly, make sure the dimensions of the connecting refrigerant pipe are the same. Place the screw connector on the refrigerant pipes just on to the thread on the indoor equipment and tighten the first few threads by hand. See Fig.9.

Fig.9

**IMPORTANT:** Before you continue, it is essential that you read the following instructions carefully.

3. Hold the points marked "①" using an open-ended spanner and turn the nuts only at the points marked "②" using an open-ended spanner (Select the appropriate spanner according to the dimensions of the connector). See Fig.10 & 11.

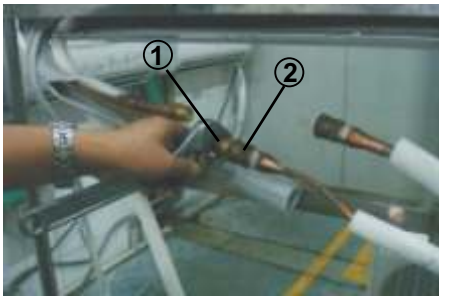



Fig.10

4. Ensure that the screw connectors do not skew as you tighten them and work quickly.

**IMPORTANT:** Since the coupling works with tapping rings, it may leak if you undo and reconnect the pipes.This will also void the warranty.

Fig.11

5.After finishing the connection, use the tape to wrap the refrigerant pipe and connecting cable together. See Fig.12.

Fig.12

**Note: Route the package of pipes/hoses in the direction of (rear)right or (rear)left. See Fig.13 .**

5.Bundle the tubing, connecting cable with tape securely, evenly as shown in Fig.14.

- Because the condensed water from rear of the indoor unit is gathered in ponding box and is piped out of room. Do not put anything else in the box.

**CAUTION:**

- Do not allow the piping to let out from the back of the indoor unit.
- Be careful not to let the drain hose slack.
- Heat insulated both of the auxiliary piping.
- Besure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.
- Never intercross nor intertwist the power wire with any other wiring.
- Run the drain hose sloped downward to drain out the condensed water smoothly.

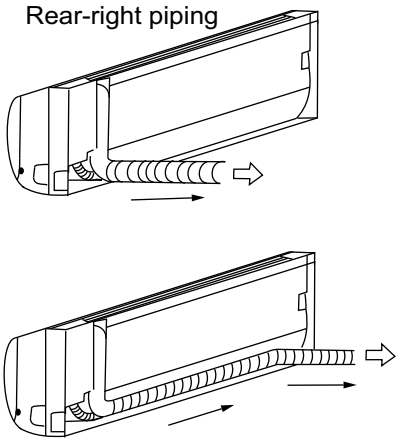



Fig.13

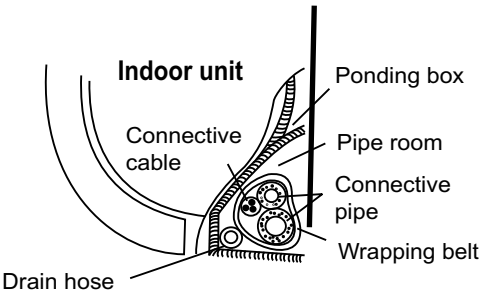



Fig.14

5. Indoor unit installa tion

1. Feed the package of pipes/hoses through the hole in the wall.
2. Hook the indoor unit onto the upper portion of the installation plate.(Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.) Ensure that the hooks are properly seated on the installation plate by moving it left and right.
3. The female half can easily be made by lifting the indoor unit with a cushioning material between the indoor unit and the wall. Get it out after finish piping.
4. Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots.

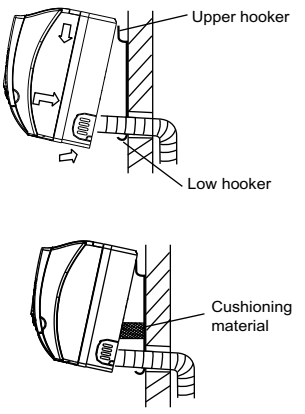
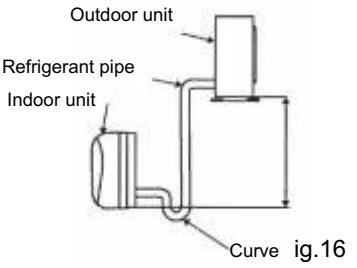



Fig.15

## *Outdoor unit installation*

1. Outdoor installa tion pr ecaution

- Select the location for installation(follow the previous notes on selecting the installation place).
- If the outdoor unit is higher thanthe indoor unit, make sure that a curve is made in the refrigerant pipe which is lower than the bottom edge of the indoor unit. See Fig.16.
- In the case that the installation place is exposed to strong wind such as a seaside, make sure the fan operating properly by putting the unit lengthwise along the wall or using a dust or shield plates, Fig.17.
- If need suspending installation, the installation bracket should accord with technique requirement in the installation bracket diagram. The installation wall should be solid brick, concrete or the same intensity construction, or actions to reinforce, damping supporting should be taken. The connection between bracket and wall, bracket and the air conditioner should be firm, stable and reliable.
- Be sure there is no obstacle which block radiating air.




ig.16

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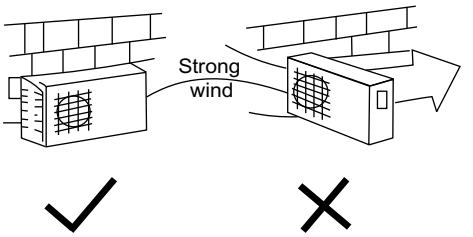



Fig.17

2. Settlement of outdoor unit

- Anchor the outdoor unit with a bolt and nut $\phi$10 or $\phi$8 tightly and horizontally on a concrete or rigid mount.

| Outdoorunitdimension mm(WxHxD) | Mountingdimensions | |
|---|---|---|
| | A(mm) | B(mm) |
| 700x540x240 | 458 | 250 |
| 685x430x260 | 460 | 276 |
| 780x540x250 | 549 | 276 |
| 760x590x285 | 530 | 290 |
| 845x700x320 | 560 | 335 |
| 775x545x310 | 600 | 320 |
| 670x540x265 | 481 | 276 |

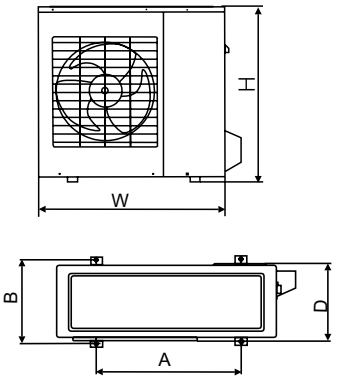



Fig.18

3. Dr ain joint installa tion

Fit the seal into the drain elbow, then insert the drain joint into the base pan hole of outdoor unit, rotate 90° to securely assemble them. Connecting the drain joint with an extension drain hose (Locally purchased), in case of the water draining off the outdoor unit during the heating mode.

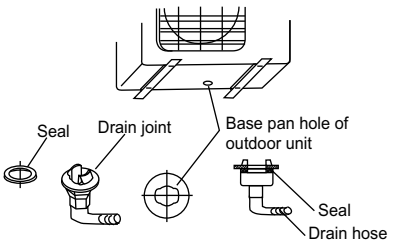



Fig.19

4. Connecting the r efriger ant pipe to outdoor unit

**CAUTION:** For your safety, always wear goggles and work gloves when connecting the pipes.

**NOTE:** To distinguish the connectors to be connected to the indoor unit and outdoor unit, the connectors of the refrigerant pipe has been labelled "A", "B", "C" and "D". Ensure the marks on the connector are the same to the indoor's and outdoor's respectively during connection.

1. First remove the water tray on the outdoor unit as shown in Fig.20.
2. Do not remove the plastic seals from the outdoor unit and the appropriate refrigerant pipes until immediately before you connect them, Fig.21.
3. Align the refrigerant pipes correctly so that they line up with the valves and are not stressed. Place the screw connector on the refrigerant line just on to the thread on the outdoor unit and tighten the first few threads by hand, Fig.22.
   **NOTE:** The refrigerant pipes must be connected to the valves on the outdoor unit with as little stress as possible.

IMPORTANT: Before you continue,it is essential that you read the following instructions carefully.

4. Now tighten the bottom screw connector first and then the top screw connector using the open-ended spanner. Hold the points marked "①" using an open-ended spanner and turn the nuts only at the points marked "②", using an open-ended spanner (Select the appropriate spanner according to the dimensions of the connector), see Fig.23.

- Ensure that the screw connectors do not skew as you tighten them and work quickly. See the next page for the proper torque.

**IMPORTANT:** Since the coupling works with tapping rings, it may leak if you undo and reconnect the pipes.This will alsovoid the warranty.

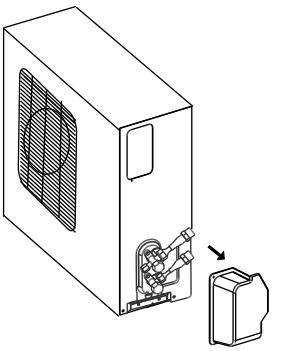
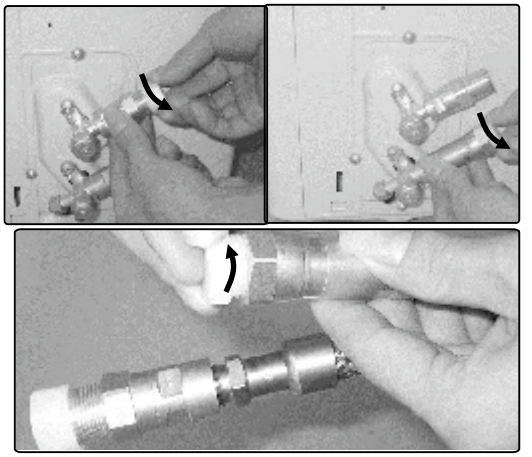


Fig.20



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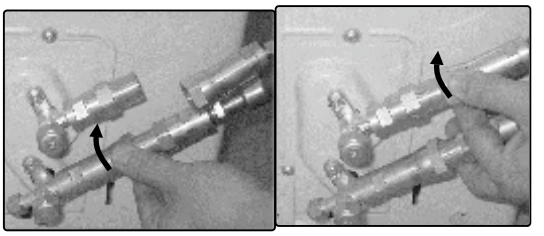


Fig.22

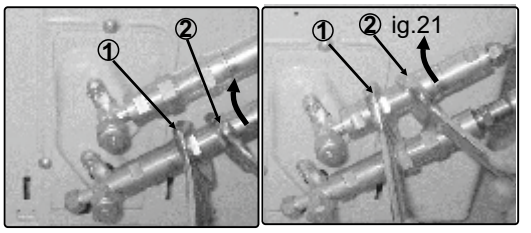



Fig.23

| Coupling size (last 2 part numbers) | Pound-force foot(1bf-ft) | Newton meter(N-m) | Kilogram-force meter(kgf-m) |
|---|---|---|---|
| -06(9.5mm dash size) | 18 - 20 | 24.4 - 27.1 | 2.4 - 2.7 |
| -08(12.7mm dash size) | 30 - 35 | 40.6 - 47.4 | 4.1 - 4.8 |
| -12(19.1mm dash size) | 45 - 50 | 61.0 - 67.7 | 6.2 - 6.9 |
| -16(25.4mm dash size) | 60 - 65 | 81.3 - 88.1 | 8.2 - 8.9 |

Aftercompletingsteps1-4,checkthatallthe connectionsaresealedcorrectlyusingleak detectionsprayorsoapsuds.Ifanybubblesform, thesystem hasaleakandthescrewconnectors mustberetightenedusinganopen-endedspanner.

5.Nowremovethecoveronthetopvalveusinga 19mmopen-endedspanner.Openthevalveby turningitcounter-clockwiseasfarasitwillgo usinga5mmAllenkey.Thevalveisnowopen.If thevalveisnotopenedfully,thesystemmay malfunctionandsufferdamage.Screwthecover backontothetopvalveandtightenitwellto ensurethatitisproperlysealed. See Fig.24.

6.Nowremovethecoveronthebottomvalveusing a19mmopen-endedspanner.Openthevalve by turningitcounter-clockwiseasfarasitwillgo usinga5mmAllenkey.Thevalveisnowopen. Ifthevalve isnotopenedfully,thesystemmay malfunctionandsufferdamage.Screwthecover backontothebottom valveandtightenitwellto ensurethatitisproperlysealed. See Fig.25.

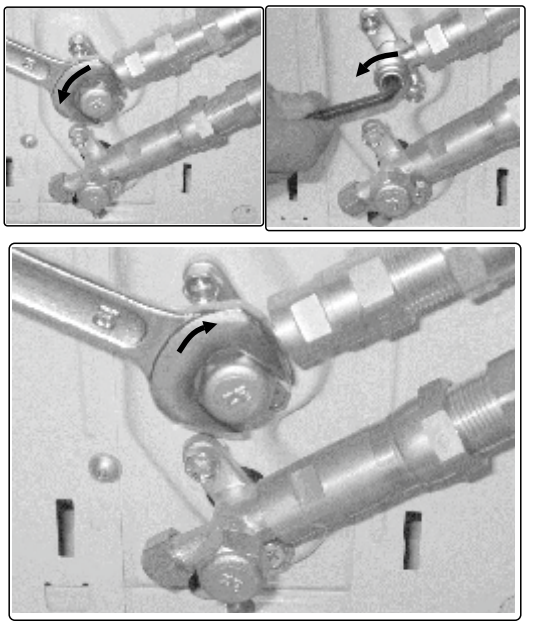


Fig.24

**Important!** Theconicalringonthevalvehasan importantsealingfunctiontogetherwiththesealing seatinthecaps.Ensurethatyoudonotdamagethe coneandthatyoukeepthecapfreeofdirtanddust.

7.Aftercompletingsteps1-6,checkthatallthe connectionsaresealedcorrectlyusingleak detectionsprayorsoapsuds.Ifanybubblesform, thesystemhasaleakandthescrewconnectors mustberetightenedusinganopen-endedspanner.

8.Starttheequipmentsothattheoperating pressures buildupinsideit.Checkallthe connectorsagainforsignsofleaks a)duringcoolingmode b)inheatingmode. Ifanybubblesform,thesystemhasaleakandthe screwconnectorsmustberetightenedusingan open-endedspanner.

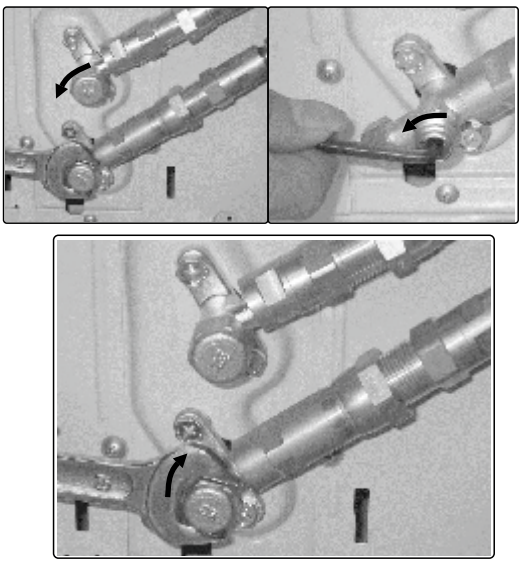


Fig.25

## Electrical w ork

Electric safety regulations for the initial Installation

1. If there is serious safety problem about the power supply, the technicians should refuse to install the air conditioner and explain to the client until the problem is solved.
2. Power voltage should be in the range of 90%~110% of rated voltage.
3. The creepage protector and main power switch with a 1.5 times capacity of Max. Current of the unit should be installed in power circuit.
4. Ensure the air conditioner is grounded well.
5. According to the attached Electrical Connection Diagram located on the panel of the outdoor unit to connect the wire.
6. All wiring must comply with local and national electrical codes and be installed by qualified and skilled electricians.
7. An individual branch circuit and single receptacle used only for this air conditioner must be available. See the following table for suggested wire sizes and fuse specifications:

| Appliance Amps | AWG W ire S ize |
|---|---|
| 10 | 18 |
| 13 | 16 |
| 18 | 14 |
| 25 | 12 |
| 30 | 10 |

***NOTE:*** The cable size and the current of the fuse or switch are determined by the maximum current indicated on the nameplate which located on the side panel of the unit. Please refer to the nameplate before selecting the cable, fuse and switch.

Connect the ca ble betw een indoor unit and outdoor unit

NOTE: Before performing any electrical work, turn off the main power to the system.

1. The inside and outside connecting cable can be connected without removing the front grille.
2. Connect cables according to their marks to terminals.
3. Lift the indoor unit panel up, remove the electrical box cover by loosening the screw.

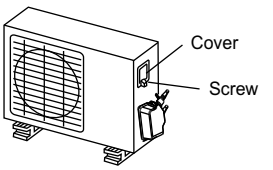



Fig.26

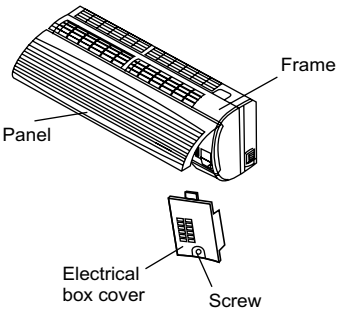
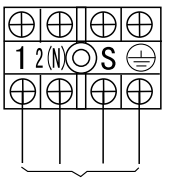
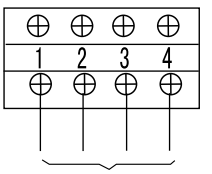



Fig.27

**Terminal block of indoor unit**




ModelA

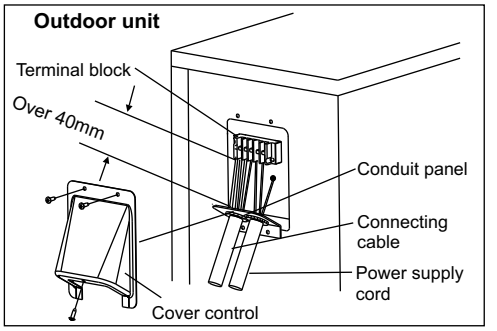



Model B

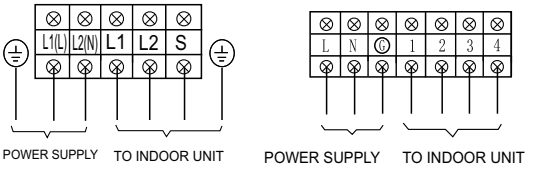
4. Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
5. Wrap those cables not connected with terminals with insulation tapes, so that they will not touch any electrical components. Secure the cable onto the control board with the cord clamp.

Connectthecabletotheoutdoorunit

1. Remove the cover control from the unit by loosening the 3 screws.
2. Dismount caps on the conduit panel.
3. Temporarily mount the conduit tubes(not included) on the conduit panel.
4. Properly connect both the power supply and low voltage lines to the corresponding terminals on the terminal block.
5. Ground the unit in accordance with local codes.
6. Be sure to size each wire allowing several inches longer than the required length for wiring.
7. Use lock nuts to secure the conduit tubes.




**Terminal block of outdoor unit**




ModelA

Model B

Fig.28

**WARNING**

- Be sure to comply with local codes while running the wire from the indoor unit to the outdoor unit.
- Every wire must be connected firmly.
- No wire should be allowed to touch refrigerant tubing, the compressor or any moving parts.
- Loose wiring may cause the terminal to overheat or result in unit malfunction.Afire hazard may also exit. Therefore, be sure all wiring is tightly connected.

**Note :**To prevent wires loosening or leaving the Cord Clamp, please select proper cord diameter to fill the holes on the cord clamp.

**CAUTION**

After the confirmation of the above conditions, prepare the wiring as follows:

**1) Never fail to have an individual power circuit specifically for the air conditioner.As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.**

**2)The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)**

**3) Specification of power source.**

**4) Confirm that electrical capacity is sufficient.**

**5)See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.**

**6)Confirm that the cable thickness is as specified in the power source specification.**

**7)Always install an earth leakage circuit breaker in a wet or moist area.**

**8) The following would be caused by voltage drop.**

Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.

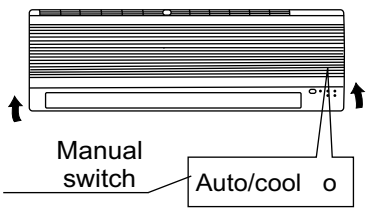
**9) The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.**

## Test r unning

Perform test operation after completing gas leak check at the flare nut connections and electrical safety check.

- Check that all tubing and wiring have been properly connected.
- Check that the gas and liquid side service valves are fully open.

1. Connect the power, press the ON/OFF button on the remote controller to turn the unit on.
2. Use the MODE button to select COOL, HEAT,AUTO and FAN to check if all the functions works well.
3. When the amient temperature is too low(lower than 17 C), the unit cannot be controlled by the remote controller to run at cooling mode, manual operation can be taken. Manual operation is used only when the remote controller is disable or maintenance necessary.
   - Hold the panel sides and lift the panel up to an angle until it remains fixed with a clicking sound.
   - Press the Manual control button to select theAUTO or COOL, the unit will operate under ForcedAUTO or COOLmode(seeUser Manual for details).
4. The test operation should last about 30 minutes.



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